



ABSTRACT AND BIOGRAPHY

A Methodology for Programmatic & Strategic Risk Assessment

The issue of enterprise risk management, or risk management for programmatic and strategic resources arise for adequate control of cost and schedule. The pressures of such long-term, complex, highly sensitive or capital intensive national or international programs, has become increasingly important in the new age for human space explorations. Particularly, like the large scale and cost intensive “constellation program” now undertaken by NASA and those by many other international partners or privately founded space enterprises, there have been salient challenges to project and program managers, and to systems engineers. Meanwhile, citizens of modern industrial society are becoming increasingly sensitive to the harsh and discomfoting reality – that the benefits, from these technological programs come at a cost not only in schedule and financial investment terms, but perhaps in loss of projects, loss of prestige and premature loss of mission objectives as well. Although the social-political stakeholders and program managers have some control over the level of program risks to which they are exposed, reduction of cost and both externally and internally imposed schedule risks also generally entail a reduction in benefits, thus posing a serious dilemma for program decision makers. This presentation introduces and explores a methodology, namely the PgRAM, (Programmatic Risk Assessment and Management) to help project/program managers in dealing with such complex risk management challenges. The PgRAM methodology should allow project management to handle more efficiently and intelligently with risk management challenges of large scale, complex and high-cost or high-valued space programs.

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Dr. F. Hsu, a US expert with over 25 years of experiences in the field of Risk Analysis, Safety and Mission Assurance (SMA) assessment for complex engineering systems. Formerly a staff research engineer at world renowned Brookhaven National Laboratory (BNL), Dr. Hsu has worked extensively on reliability, probabilistic risk assessment (PRA) and management theory and methodology research for nuclear reactor safety since the 1980s. He became Sr. staff engineer/scientist and joined NASA's SAIC team in the Shuttle & Exploration Analysis Department at Johnson Space Center in Houston since 2000. Dr. Hsu has been a lead engineering analyst and project manager working as technical expert in the space center on NASA' key program areas, such as PRA, SMA for the Space Shuttle, International Space Station as well as the Risk-informed design assessment for the new generation space launch & crew exploration vehicle (CEV/CLV/CaLV) systems. Dr. Hsu is now a leading NASA engineer and risk manager, currently heading the Integrated Risk Management (IRM) function at GSFC, and is working on various frontier space missions, including lead the GSFC team on the joint NASA-MIT project of risk-informed decision support on GPM and the LSS (Lunar Surface System) projects. Hsu has over 90 publications, including co-author of a recent



ABSTRACT AND BIOGRAPHY

book by CGPublishing, Journal articles, NUREG/CRs, BNL and NASA technical reports. Dr. Hsu has won numerous research and service awards from BNL, SAIC and NASA.